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SEQUENCE LISTING

<110> TAKEDA, Masatoshi
TAKEDA, Junji

<120> Gene-Mutated Animal

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<210> 1

<211> 467

<212> PRT

<213> Human

<400> 1

Met Thr Glu Leu Pro Ala Asx Leu Ser Tyr Phe Gln Asn Ala Gln Met
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Arg Glu Arg Gln Glu His Asn Asp Arg Arg Ser Leu Gly His Pro Glu
35 40 45

Pro Leu Ser Asn Gly Arg Pro Gln Gly Asn Ser Arg Gln Val Val Glu
50 55 60

Gln Asp Glu Glu Glu Asp Glu Glu Leu Thr Leu Lys Tyr Gly Ala Lys
65 70 75 80

His Val Ile Met Leu Phe Val Pro Val Thr Leu Cys Met Val Val Val
 85 90 95

Val Ala Thr Ile Lys Ser Val Ser Phe Tyr Thr Arg Lys Asp Gly Gln
 100 105 110

Leu Ile Tyr Thr Pro Phe Thr Glu Asp Thr Glu Thr Val Gly Gln Arg
 115 120 125

Ala Leu His Ser Ile Leu Asn Ala Ala Ile Met Ile Ser Val Ile Val
 130 135 140

Val Met Thr Ile Leu Leu Val Val Leu Tyr Lys Tyr Arg Cys Tyr Lys
 145 150 155 160

Val Ile His Ala Trp Leu Ile Ile Ser Ser Leu Leu Leu Leu Phe Phe
 165 170 175

Phe Ser Phe Ile Tyr Leu Gly Glu Val Phe Lys Thr Tyr Asn Val Ala
 180 185 190

Val Asp Tyr Ile Thr Val Ala Leu Leu Ile Trp Asn Phe Gly Val Val
 195 200 205

Gly Met Ile Ser Ile His Trp Lys Gly Pro Leu Arg Leu Gln Gln Ala
 210 215 220

Tyr Leu Ile Met Ile Ser Ala Leu Met Ala Leu Val Phe Ile Lys Tyr
 225 230 235 240

Leu Pro Glu Trp Thr Ala Trp Leu Ile Leu Ala Val Ile Ser Val Tyr
 245 250 255

Asp Leu Asp Ala Val Leu Cys Pro Lys Gly Pro Leu Arg Met Leu Val
 260 265 270

Glu Thr Ala Gln Glu Arg Asn Glu Thr Leu Phe Pro Ala Leu Ile Tyr
 275 280 285

Ser Ser Thr Met Val Trp Leu Val Asn Met Ala Glu Gly Asp Pro Glu
 290 295 300

Ala Gln Arg Arg Val Ser Lys Asn Ser Lys Tyr Asn Ala Glu Ser Thr
 305 310 315 320

Glu Arg Glu Ser Gln Asp Thr Val Ala Glu Asn Asp Asp Gly Gly Phe
 325 330 335

Ser Glu Glu Trp Glu Ala Gln Arg Asp Ser His Leu Gly Pro His Arg
 340 345 350

Ser Thr Pro Glu Ser Arg Ala Ala Val Gln Glu Leu Ser Ser Ser Ile
 355 360 365

Leu Ala Gly Glu Asp Pro Glu Glu Arg Gly Val Lys Leu Gly Leu Gly
 370 375 380

Asp Phe Ile Phe Tyr Ser Val Leu Val Gly Lys Ala Ser Ala Thr Ala
 385 390 395 400

Ser Gly Asp Trp Asn Thr Thr Ile Ala Cys Phe Val Ala Ile Leu Ile
 405 410 415

Gly Leu Cys Leu Thr Leu Leu Leu Leu Ala Ile Phe Lys Lys Ala Leu
 420 425 430

Pro Ala Leu Pro Ile Ser Ile Thr Phe Gly Leu Val Phe Tyr Phe Ala
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Thr Asp Tyr Leu Val Gln Pro Phe Met Asp Gln Leu Ala Phe His Gln
 450 455 460

Phe Tyr Ile
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<211> 1404
<212> DNA
<213> Human

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120

agacggagcc ttggccaccc tgagccatta tctaattggac gaccccaggg taactcccgg
180

caggtggtgg agcaagatga ggaagaagat gaggagctga cattgaaata tggcgccaag
240

catgtgatca tgctctttgt ccctgtgact ctctgcatgg tggtggtcgt ggctactatt
300

aagtcagtca gcttttatac ccggaaggat gggcagctaa tctatacccc attcacagaa
360

gataccgaga ctgtgggcca gagagccctg cactcaattc tgaatgctgc catcatgac
420

agtgtcattg ttgtcatgac taccctcctg gtggttctgt ataaatacag gtgctataag
480

gtcatccatg cctggcttat tatatcatct ctattgttgc tgttcttttt ttcattcatt
540

tacttggggg aagtgtttaa aacctataac gttgctgtgg actacattac tgttgcactc
600

ctgatctgga attttggtgt ggtgggaatg atttccattc actggaaagg tccacttcga
660

ctccagcagg catatctcat tatgattagt gccctcatgg ccctgggtgtt tatcaagtac
720

ctccctgaat ggactgctgt gctcatcttg gctgtgattt cagtatatga ttagtggt

780

gttttggtgc cgaaaggtcc acttcgtatg ctggttgaaa cagctcagga gagaaatgaa
840

acgctttttc cagctctcat ttactcctca acaatgggtg gggttggtgaa tatggcagaa
900

ggagacccgg aagctcaaag gagagtatcc aaaaattcca agtataatgc agaaagcaca
960

gaaagggagt cacaagacac tgttgcagag aatgatgatg gcggggttcag tgaggaatgg
1020

gaagcccaga gggacagtca tctagggcct catcgctcta cacctgagtc acgagctgct
1080

gtccaggaac tttccagcag tatcctcgct ggtgaagacc cagaggaaag gggagtaaaa
1140

cttggtattg gagatttcat tttctacagt gttctgggtg gttaaagcctc agcaacagcc
1200

agtggagact ggaacacaac catagcctgt ttcgtagcca tattaattgg tttgtgcctt
1260

acattattac tccttgccat tttcaagaaa gcattgccag ctcttccaat ctccatcacc
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1404

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<211> 467
<212> PRT
<213> Mouse

<400> 3

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Ser Glu Asp Ser His Ser Ser Ser Ala Ile Arg Ser Gln Asn Asp Ser

20

25

30

Glu Glu Arg Gln Gln Gln His Asp Arg Gln Arg Leu Asp Asn Pro Glu
 35 40 45

Pro Ile Ser Asn Gly Arg Pro Gln Ser Asn Ser Arg Gln Val Val Glu
 50 55 60

Gln Asp Glu Glu Glu Asp Glu Glu Leu Thr Leu Lys Tyr Gly Ala Lys
 65 70 75 80

His Val Ile Met Leu Phe Val Pro Val Thr Leu Cys Met Val Val Val
 85 90 95

Val Ala Thr Ile Lys Ser Val Ser Phe Tyr Thr Arg Lys Asp Gly Gln
 100 105 110

Leu Ile Tyr Thr Pro Phe Thr Glu Asp Thr Glu Thr Val Gly Gln Arg
 115 120 125

Ala Leu His Ser Ile Leu Asn Ala Ala Ile Met Ile Ser Val Ile Val
 130 135 140

Ile Met Thr Ile Leu Leu Val Val Leu Tyr Lys Tyr Arg Cys Tyr Lys
 145 150 155 160

Val Ile His Ala Trp Leu Ile Ile Ser Ser Leu Leu Leu Leu Phe Phe
 165 170 175

Phe Ser Phe Ile Tyr Leu Gly Glu Val Phe Lys Thr Tyr Asn Val Ala
 180 185 190

Val Asp Tyr Val Thr Val Ala Leu Leu Ile Trp Asn Phe Gly Val Val
 195 200 205

Gly Met Ile Ala Ile His Trp Lys Gly Pro Leu Arg Leu Gln Gln Ala

210		215		220
Tyr 225	Leu Ile Met Ile	Ser 230	Ala Leu Met Ala	Leu 235 Val Phe Ile Lys Tyr 240
Leu	Pro Glu Trp Thr 245	Ala Trp Leu Ile	Leu 250 Ala Val Ile Ser	Val Tyr 255
Asp	Leu Val Ala 260	Val Leu Cys Pro	Lys 265 Gly Pro Leu Arg	Met Leu Val 270
Glu	Thr Ala Gln Glu Arg	Asn 280	Glu Thr Leu Phe Pro	Ala 285 Leu Ile Tyr
Ser	Ser Thr Met Val Trp	Leu 295	Val Asn Met Ala	Glu 300 Gly Asp Pro Glu
Ala 305	Glu Arg Arg Val	Pro 310	Lys Asn Pro Lys Tyr	Asn 315 Thr Gln Arg Ala 320
Glu	Arg Glu Thr Gln Asp	Ser 325	Gly Ser Gly Asn Asp	Asp 335 Gly Gly Phe
Ser	Glu Glu Trp Glu Ala	Gln 340	Arg Asp Ser His Leu	Gly 350 Pro His Arg
Ser	Thr Pro Glu Ser Arg	Ala 355	Ala Val Gln Glu Leu	Ser 365 Gly Ser Ile
Leu	Thr Ser Glu Asp Pro	Glu 375	Glu Arg Gly Val Lys	Leu 380 Gly Leu Gly
Asp 385	Phe Ile Phe Tyr Ser	Val 390	Leu Val Gly Lys	Ala 395 Ser Ala Thr Ala 400
Ser	Gly Asp Trp Asn Thr	Thr	Ile Ala Cys Phe	Val Ala Ile Leu Ile

405

410

415

Gly Leu Cys Leu Thr Leu Leu Leu Leu Ala Ile Phe Lys Lys Ala Leu
 420 425 430

Pro Ala Leu Pro Ile Ser Ile Thr Phe Gly Leu Val Phe Tyr Phe Ala
 435 440 445

Thr Asp Tyr Leu Val Gln Pro Phe Met Asp Gln Leu Ala Phe His Gln
 450 455 460

Phe Tyr Ile
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<210> 4
 <211> 1404
 <212> DNA
 <213> Mouse

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 120

aggcagagac ttgacaaccc tgagccaata tctaattgggc ggccccagag taactcaaga
 180

caggtggtgg aacaagatga ggaggaagac gaagagctga cattgaaata tggagccaag
 240

catgtcatca tgctctttgt ccccgtagacc ctctgcatgg tcgtcgtcgt ggccaccatc
 300

aatcagtcga gcttctatac ccggaaggac ggtcagctaa tctacacccc attcacagaa
 360

gacactgaga ctgtaggcca aagagccctg cactcgatcc tgaatgcggc catcatgatc
 420

agtgtcattg tcattatgac catcctcctg gtggtcctgt ataaatacag gtgctacaag
 480

gtcatccacg cctggcttat tatttcacat ctgttggtgc tgttcttttt ttcgttcatt
540

tacttagggg aagtatttaa gacctacaat gtcgccgtgg actacgttac agtagcactc
600

ctaactctgga attttggtgt ggtcgggatg attgccatcc actggaaagg ccccttcga
660

ctgcagcagg cgtatctcat tatgatcagt gccctcatgg ccctgggtatt tatcaagtac
720

ctccccgaat ggaccgcatg gctcatcttg gctgtgattt cagtatatga tttggtggct
780

gttttatgtc ccaaaggccc acttcgtatg ctggttgaaa cagctcagga aagaaatgag
840

actctctttc cagctcttat ctattcctca acaatgggtg ggttggtgaa tatggctgaa
900

ggagaccag aagcccaaag gaggtaccc aagaaccca agtataacac acaaagagcg
960

gagagagaga cacaggacag tggttctggg aacgatgatg gtggcttcag tgaggagtgg
1020

gaggcccaa gagacagtca cctggggcct catcgctcca ctcccgagtc aagagctgct
1080

gtccaggaac tttctgggag cattctaacg agtgaagacc cggaggaaag aggagtaaaa
1140

cttgactgg gagatttcac tttctacagt gttctggttg gtaaggcctc agcaaccgcc
1200

agtggagact ggaacacaac catagcctgc tttgtagcca tactgatcgg cctgtgcctt
1260

acattactcc tgctcgccat tttcaagaaa gcgttgccag ccctcccat ctccatcacc
1320

ttcgggctcg tgttctactt cgccacggat taccttgtgc agcccttcac ggaccaactt
1380

gcattccatc agttttatat ctag
1404

<210> 5
<211> 25
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 5
ggaattttgg tgtgggtcggg atgat
25

<210> 6
<211> 23
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 6
ggtccattcg gggaggtact tga
23

<210> 7
<211> 36
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 7
tgtgggtcggg atgatcgcca cccactggaa aggccc
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<210> 8
<211> 36
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 8
gggcctttcc agtgggtggc gatcatcccg accaca
36

<210> 9
<211> 18
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 9
tctagacggc cgtctaga
18

<210> 10
<211> 18
<212> DNA
<213> Artificial

<220>
<223> Primer

<400> 10
agatctgccg gcagatct
18

<210> 11
<211> 30
<212> DNA
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<220>
<223> Primer

<400> 11
cccaactcta tttctaccct cgttcatctg
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<210> 12
<211> 30
<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 12

tagtgagacg tgctacttcc atttgtcacg
30

<210> 13

<211> 30

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 13

tgctggagga aaatgtgtta tttaagagca
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<210> 14

<211> 30

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 14

tactgaaatc acagccaaga tgagccatgc
30

<210> 15

<211> 30

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 15

ggtccatccc agcttcacac agacaagtct
30

<210> 16
 <211> 30
 <212> DNA
 <213> Artificial

<220>
 <223> Primer

<400> 16
 tactgaaatc acagccaaga tgagccatgc
 30

<210> 17
 <211> 30
 <212> DNA
 <213> Artificial

<220>
 <223> Primer

<400> 17
 tagtgagacg tgctacttcc atttgtcacg
 30

<210> 18
 <211> 36
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic construct

<220>
 <221> misc_feature
 <222> (16)..(16)
 <223> y is t or c

<220>
 <221> misc_feature
 <222> (20)..(22)
 <223> wherein v is a base other than t; and wherein avc represents
 a
 codon, as triplet bases of a mutant presenilin-1 gene, encoding

an amino acid.

<400> 18
tgtggtcggg atgatygccca vccactggaa aggccc
36

<210> 19
<211> 36
<212> DNA
<213> Artificial

<220>
<223> synthetic construct

<220>
<221> misc_feature
<222> (16)..(16)
<223> y is t or c

<220>
<221> misc_feature
<222> (20)..(22)
<223> wherein acc represents a codon, as triplet bases of a mutant
presenilin-1 gene, encoding an amino acid.

<400> 19
tgtggtcggg atgatygccca cccactggaa aggccc
36

<210> 20
<211> 36
<212> DNA
<213> Artificial

<220>
<223> synthetic construct

<220>
<221> misc_feature
<222> (16)..(16)
<223> y is t or c

<220>

<221> misc_feature
 <222> (20)..(22)
 <223> wherein each n is independently chosen from any base; and nn
 n
 1 represents a codon, as triplet bases of a mutant presenilin-
 gene, encoding an amino acid other than isoleucine.

<400> 20
 tgtggtcggg atgatygccn nncactggaa aggccc
 36

<210> 21
 <211> 12
 <212> DNA
 <213> Artificial

<220>
 <223> oligodeoxynucleotide targeting vector

<400> 21
 ctagacggcc gt
 12

<210> 22
 <211> 18
 <212> DNA
 <213> Artificial

<220>
 <223> vector

<400> 22
 tctagacggc cgtctaga
 18